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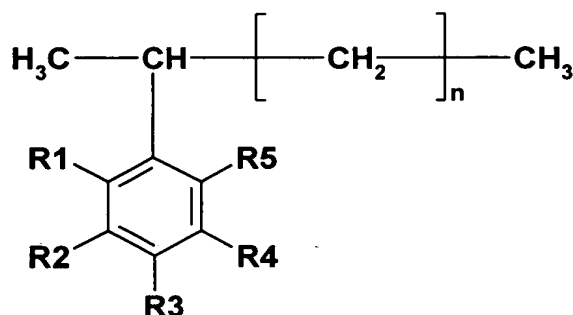
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We claim:

1) A composition of matter comprising one or more sulfonated aromatic alkylates, which composition contains any amount between 30.00 % and 82.00 % by weight based upon the total weight of the mixture, including every hundredth percentage therebetween, of the 2-phenyl isomers of sulfonated aromatic alkylates described by the general formula:



in which n may be equal to any integer between 4 and 16, wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is selected from the group of: a sulfonic acid group or a sulfonate group, and wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is a substituent group that is selected from the group consisting of: methyl and ethyl.

2) A composition according to claim 1 wherein said comprising any amount between 40.00% and 70.00 %, including every hundredth percentage therebetween, by weight based upon the total weight of the mixture of the 2-phenyl isomers.

3) A composition according to claim 1 in which one and only one of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  is a sulfonate group, and electrical neutrality is achieved by the presence of one or more cations selected from the group consisting of: sodium, potassium, lithium, rubidium, magnesium, calcium, strontium, ammonium, alkanolammonium, and alkyl-substituted ammonium.

4) A composition according to claim 3 wherein said mixture results from the neutralization of a sulfonated aromatic alkylate according to claim 1 in aqueous solution using an oxide, hydroxide, silicate, or carbonate of a metal selected from the group consisting of: sodium, potassium, lithium, rubidium, magnesium, calcium, and strontium.

5) A composition according to claim 1 wherein  $R_3$  is methyl in at least 50 % of the sulfonic acids present in the mixture by weight based upon the total weight of the mixture.

6) A composition according to claim 1 wherein  $R_3$  is ethyl in at least 50 % of the sulfonic acids present in the mixture by weight based upon the total weight of the mixture.

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7) A composition according to claim 1 wherein  $R_3$  is a sulfonic acid group in at least 25 % of the sulfonic acids present in the mixture by weight based upon the total weight of the mixture.

8) A composition according to claim 1 wherein the 2-phenyl isomers content of the sulfonated aromatic alkylate comprises any amount between 45.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

9) A composition according to claim 1 wherein the 2-phenyl isomers content of the sulfonated aromatic alkylate comprises any amount between 57.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

10) A composition according to claim 1 wherein the alkyl group bonded to the aromatic ring is substantially linear.

11) A composition according to claim 10 wherein the alkyl group comprises any integral number of carbon atoms between 7 and 16.

12) A composition according to claim 1 wherein the alkyl group bonded to the aromatic ring is a branched alkyl group.

13) A composition according to claim 12 wherein the alkyl group comprises any integral number of carbon atoms between 7 and 16.

14) A composition according to claim 1 further comprising an additional material known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, citric acid, citrates, nitriloacetic acid, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, water-soluble branched alkylbenzene sulfonates, ether sulfates, alkylphenol alkoxylates, fatty acid amides, alpha olefin sulfonates, paraffin sulfonates, betaines, chelating agents, tallowamine ethoxylates, polyetheramine ethoxylates, ethylene oxide/propylene oxide block copolymers, alcohol ethylene oxide/propylene oxide low foam surfactants, methyl ester sulfonates, alkyl polysaccharides, N-methyl glucamides, alkylated sulfonated diphenyl oxide, polyethylene glycol, and water soluble alkylbenzene sulfonates having a 2-phenyl isomer content of less than 30.00%.

15) A composition according to claim 14 wherein said additional material is a mixture of water soluble alkylbenzene sulfonates wherein said water soluble alkylbenzene

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sulfonates have a 2-phenyl isomer content of less than 25.00 % by weight based upon the total weight of said additional material.

16) A composition according to claim 14 wherein said sulfonated aromatic alkylates comprise any amount between 1.00% and 25.00% of the total composition on a weight basis.

17) A composition according to claim 14 wherein said additional material is present in any amount between 0.10% and 25.00% by weight based upon the total weight of said mixture.

18) A composition according to claim 14 further comprising a third component, wherein said third component is different from said second component and is selected from the group consisting of: at least one other component known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, water-soluble branched alkylbenzene sulfonates, and water soluble alkylbenzene sulfonates having a 2-phenyl isomer content of less than 30.00 %.

19) A composition according to claim 18 wherein said third component is a mixture of water soluble alkylbenzene sulfonates wherein said water soluble alkylbenzene

sulfonates have a 2-phenyl isomer content of less than 25.00 % by weight based upon the total weight of said water soluble alkylbenzene sulfonate component.

20) The water-soluble salts of a composition according to claim 1 which are solids at room temperature and which include at least one anion selected from the group consisting of: sodium, potassium, calcium, and magnesium.

21) A salt of an alkyltoluene sulfonate, wherein said salt exists in the form of a solid at room temperature.

22) A composition of matter comprising a mixture of salts of alkyltoluene sulfonates wherein the salts of said alkyltoluene sulfonates comprise a single alkyl substituent selected from those having any carbon number in the detergent range bonded to a benzene ring to which benzene ring a sulfonate group is also bonded, wherein the 2-phenyl isomer content of such alkyltoluene sulfonate salt is sufficient to render such mixture of salts to exist in the form of a solid at room temperature.

23) A mixture of salts according to claim 22 having no melting point peak in the range of between 60 degrees centigrade and 90 degrees centigrade as measured by differential scanning calorimetry according to ASTM method D-3417.

24) A mixture of salts according to claim 22 wherein said salt comprises a cation selected from the group consisting of: alkali metal cations, alkaline earth metal cations, ammonium ions, and cationic surfactants.

25) A mixture of salts of an alkyltoluene sulfonate as in claim 24 wherein said cation is selected from the group consisting of: sodium and potassium.

26) A solid bar of soap comprising between 3.99% and 25.00 % by weight of 2-phenyl isomers of alkyltoluene sulfonate, wherein at least 50% of the alkyltoluene sulfonate isomers present are the 2-toluyyl isomer.

27) A free-flowing powdered detergent formulation which contains a solid salt of an alkyltoluene sulfonate and at least one other component known to be useful in formulating soaps, detergents, and the like.

28) A solid tablet useful for cleaning laundry which comprises a solid salt of an alkyltoluene sulfonate and at least one other component known to be useful in formulating soaps, detergents, and the like.

29) An emulsion formed from components comprising: a) an oil; b) water; and c) a composition according to claim 1.

30) An emulsion according to claim 29 wherein said emulsion is selected from the group consisting of: an oil-in-water emulsion and a water-in-oil emulsion.

31) An emulsion according to claim 29 wherein said emulsion comprises oil and water, wherein oil and water are present in equal amounts by weight or by volume.



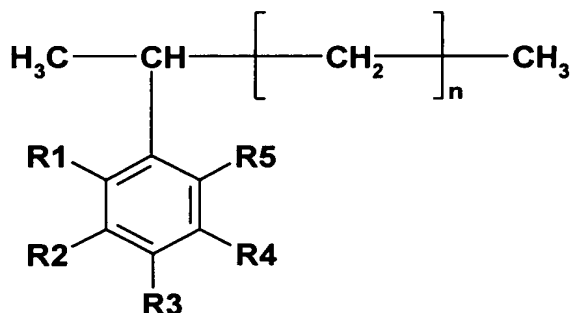
32) An aqueous solution comprising a composition according to claim 1, wherein one and only one of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  is a sulfonate group, and wherein the total amount of sulfonate in said aqueous solution is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 200 NTU units when the total hardness level of the water is any value between 100-300 ppm.

33) An aqueous solution comprising a composition according to claim 1, wherein one and only one of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  is a sulfonate group, and wherein the total amount of sulfonate in said aqueous solution is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 100 NTU units when the total hardness level of the water is any value between 100-300 ppm.

34) An aqueous solution comprising a composition according to claim 1, wherein one and only one of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  is a sulfonate group, and wherein the total amount of sulfonate in said aqueous solution is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 50 NTU units when the total hardness level of the water is any value between 100-300 ppm.

35) A composition that is useful in preparing finished detergent compositions useful for cleaning fabrics, dishes, hard surfaces, and other substrates that is formed from components comprising:

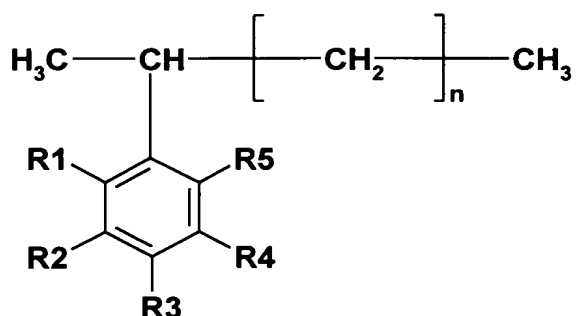
a) a first component present in any amount between 99.75% and 0.25% by weight based upon the total weight of the mixture, said first component characterized as comprising a mixture of two or more water-soluble sulfonates, which mixture contains any amount between 30.00 % and 82.00 % by weight based upon the total weight of the mixture, including every hundredth percentage therebetween, of the 2-phenyl isomers of sulfonated aromatic alkylates described by the general formula:



in which n may be equal to any integer between 4 and 16, wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is selected from the group of: a sulfonic acid group or a sulfonate group, and wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is a substituent group that is selected from the group consisting of: methyl and ethyl;

and

b) a second component present in any amount between 0.25% and 99.75% by weight based upon the total weight of the mixture, said second component characterized as comprising any amount between 26.00 % and 82.00 % by weight, including every hundredth percentage therebetween, based upon the total weight of said second component of water-soluble sulfonates of the 2-phenyl isomers of alkylbenzenes described by the general formula:



wherein n is equal to any integer between 4 and 16, and wherein any one, but only one, of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is selected from the group consisting of: a sulfonic acid group or a sulfonate group, and wherein those of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> which are not a sulfonic acid group or a sulfonate group are hydrogen.

36) A composition according to claim 35 wherein the 2-phenyl isomers content of the first component comprises any amount between 45.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

37) A composition according to claim 35 wherein the 2-phenyl isomers content of the first component comprises any amount between 57.00% and 82.00% by weight based

upon the total weight of the component, including every hundredth percentage therebetween.

38) A composition according to claim 35 wherein the 2-phenyl isomers content of the second component comprises any amount between 45.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

39) A composition according to claim 35 wherein the 2-phenyl isomers content of the second component comprises any amount between 57.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

40) A composition according to claim 35 in which both components are sulfonates, and wherein said sulfonates are salts comprising cations of an element selected from the group consisting of: sodium, potassium, lithium, rubidium, magnesium, calcium, and strontium.

41) A composition according to claim 35 wherein said mixture is solid at room temperature and has no melting point in the range of about 40 degrees centigrade and 80 degrees centigrade as measured by differential scanning calorimetry according to ASTM method D-3417.

42) A composition according to claim 40 wherein said mixture results from the neutralization of a mixture of the sulfonic acids corresponding to said sulfonates in aqueous solution using an oxide, hydroxide, or carbonate of a metal selected from the group consisting of: sodium, potassium, lithium, rubidium, magnesium, calcium, and strontium.

43) A composition according to claim 35 wherein  $R_3$  is methyl in at least 25 % of the sulfonates present in said first component of the mixture, by weight based upon the total weight of the first component.

44) A composition according to claim 35 wherein  $R_3$  is methyl in at least 25 % of the sulfonates present in said second component of the mixture by weight based upon the total weight of the second component.

45) A composition according to claim 35 wherein  $R_3$  is selected from the group consisting of: a sulfonic acid group or a sulfonate group in at least 50 % of the sulfonates present in the first component by weight based upon the total weight of the first component.

46) A composition according to claim 35 wherein  $R_3$  is selected from the group consisting of: a sulfonic acid group or a sulfonate group in at least 50 % of the sulfonates present in the second component by weight based upon the total weight of the second component.

47) An aqueous solution comprising a composition according to claim 35, wherein the combined amount of said first and said second components is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 200 NTU units when the total hardness level of the water is any value between 100-300 ppm.

48) An aqueous solution comprising a composition according to claim 35, wherein the combined amount of said first and said second components is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 150 NTU units when the total hardness level of the water is any value between 100-300 ppm.

49) An aqueous solution comprising a composition according to claim 35, wherein the combined amount of said first and said second components is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 50 NTU units when the total hardness level of the water is any value between 100-300 ppm.

50) A composition of matter useful for cleaning comprising a composition according to claim 35 and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing in said first and said second components of said mixture an effective 2-phenyl isomer content sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 200 NTU units when the total hardness level of the water is any value between 100-300 ppm, and in which the total sulfonate surfactant concentration in said composition is any amount between 0.09 and 0.11 %.

51) A composition of matter useful for cleaning comprising a composition according to claim 35 and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing in said first and said second components of said mixture an effective 2-phenyl isomer content sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 150 NTU units when the total hardness level of the water is any value between 100-300 ppm, and in which the total sulfonate surfactant concentration in said composition is any amount between 0.09 and 0.11 %.

52) A composition of matter useful for cleaning comprising a composition according to claim 35 and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing in said first and said second components of said mixture an effective 2-phenyl isomer content sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 50 NTU units when the total hardness level of

the water is any value between 100-300 ppm, and in which the total sulfonate surfactant concentration in said composition is any amount between 0.09 and 0.11 %.

53) A composition according to claim 35 wherein the alkyl group on said first component is a linear alkyl group.

54) A composition according to claim 35 wherein the alkyl group on said first component is a branched alkyl group.

55) A composition according to claim 35 wherein the alkyl group on said second component is a linear alkyl group.

56) A composition according to claim 35 wherein the alkyl group on said second component is a branched alkyl group.

57) A composition according to claim 35 further comprising an additional material known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, water-soluble branched alkylbenzene sulfonates, ether sulfates, alkylphenol alkoxylates, fatty acid amides, alpha olefin sulfonates, paraffin sulfonates, betaines,



chelating agents, tallowamine ethoxylates, polyetheramine ethoxylates, ethylene oxide/propylene oxide block copolymers, alcohol ethylene oxide/propylene oxide low foam surfactants, methyl ester sulfonates, alkyl polysaccharides, N-methyl glucamides, alkylated sulfonated diphenyl oxide, polyethylene glycol, water soluble alkyltoluene sulfonates having a 2-phenyl isomer content of less than 30.00 %, and water soluble alkylbenzene sulfonates having a 2-phenyl isomer content of less than 26.00 %

58) A composition according to claim 57 wherein the total concentration of water soluble sulfonates is between 0.025% and 25.00% by weight, based upon the total weight of the solution, and including every hundredth percentage therebetween.

59) A composition according to claim 57 wherein the total concentration of said additional material is between 0.10% and 25.00% by weight, based upon the total weight of the solution, and including every hundredth percentage therebetween.

60) A composition according to claim 57 further comprising a third component, wherein said third component is different from said second component and is selected from the group consisting of: at least one other component known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives,

brighteners, builders, polyacrylates, essential oils, alkali hydroxides, water-soluble branched alkylbenzene sulfonates, water soluble alkyltoluene sulfonates having a 2-phenyl isomer content of less than 30.00 %, and water soluble alkylbenzene sulfonates having a 2-phenyl isomer content of less than 26.00 %.

61) A solid bar of soap comprising between 2.00% and 25.00 % by weight based upon the total weight of the bar of soap of a composition according to claim 35.

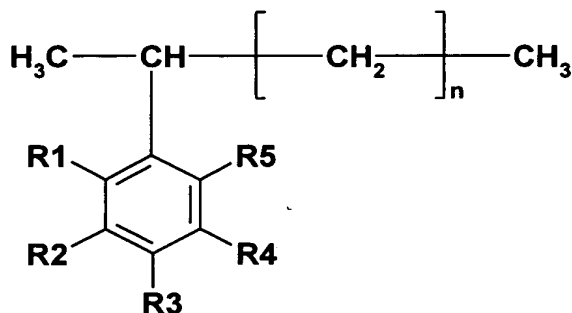
62) A free-flowing powdered detergent formulation which contains a composition according to claim 35 and at least one other component known to be useful in formulating soaps, detergents, and the like.

63) A solid tablet useful for cleaning laundry which comprises a composition according to claim 35 and at least one other component known to be useful in formulating soaps, detergents, and the like.

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64) A composition that is useful in preparing finished detergent compositions useful for cleaning fabrics, dishes, hard surfaces, and other substrates that is formed from components comprising:

a) a first component present in any amount between 99.75% and 0.25% by weight based upon the total weight of the mixture, said first component characterized as comprising a mixture of two or more water-soluble sulfonates, which mixture contains any amount between 30.00 % and 82.00 % by weight based upon the total weight of the mixture, including every hundredth percentage therebetween, of the 2-phenyl isomers of sulfonated aromatic alkylates described by the general formula:



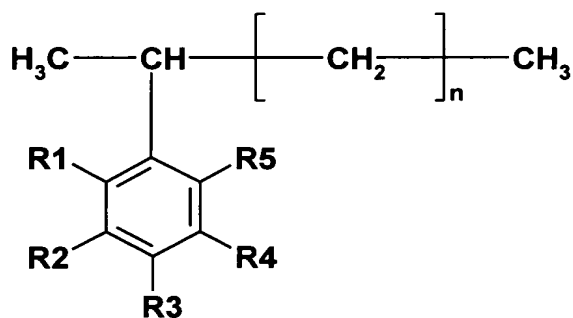
in which n may be equal to any integer between 4 and 16, wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is selected from the group consisting of: a sulfonic acid group or a sulfonate group, and wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is a substituent group that is selected from the group consisting of: methyl and ethyl;

and

b) a second component present in any amount between 0.25% and 99.75% by weight based upon the total weight of the mixture, said second component characterized as

comprising any amount between 50.00 % and 1.00 % by weight, including every hundredth percentage therebetween, based upon the total weight of said second component

of water-soluble sulfonates of the 2-phenyl isomers of alkylbenzenes described by the general formula:



wherein n is equal to any integer between 4 and 16, and wherein any one, but only one, of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is selected from the group consisting of: a sulfonic acid group or a sulfonate group, and wherein those of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> which is not a sulfonic acid group or a sulfonate group are hydrogen.

65) A composition according to claim 64 wherein the 2-phenyl isomers content of the first component comprises any amount between 45.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

66) A composition according to claim 64 wherein the 2-phenyl isomers content of the first component comprises any amount between 57.00% and 82.00% by weight based

upon the total weight of the component, including every hundredth percentage therebetween.

67) A composition according to claim 64 wherein the 2-phenyl isomers content of the second component comprises any amount between 45.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

68) A composition according to claim 64 wherein the 2-phenyl isomers content of the second component comprises any amount between 57.00% and 82.00% by weight based upon the total weight of the component, including every hundredth percentage therebetween.

69) A composition according to claim 64 in which both components are sulfonates, and wherein said sulfonates are salts comprising cations of an element selected from the group consisting of: sodium, potassium, lithium, rubidium, magnesium, calcium, and strontium.

70) A composition according to claim 64 wherein said mixture is solid at room temperature and has a melting point in the range of about 40 degrees centigrade and 80 degrees centigrade as measured by differential scanning calorimetry according to ASTM method D-3417.

71) A composition according to claim 69 wherein said mixture results from the neutralization of a mixture of the sulfonic acids corresponding to said sulfonates in aqueous solution using an oxide, hydroxide, or carbonate of a metal selected from the group consisting of: sodium, potassium, lithium, rubidium, magnesium, calcium, and strontium.

72) A composition according to claim 64 wherein  $R_3$  is methyl in at least 25 % of the sulfonates present in said first component of the mixture, by weight based upon the total weight of the first component.

73) A composition according to claim 64 wherein  $R_3$  is methyl in at least 25 % of the sulfonates present in said second component of the mixture by weight based upon the total weight of the second component.

74) A composition according to claim 64 wherein  $R_3$  is selected from the group consisting of: a sulfonic acid group or a sulfonate group in at least 50 % of the sulfonates present in the first component by weight based upon the total weight of the first component.

75) A composition according to claim 64 wherein  $R_3$  is selected from the group consisting of: a sulfonic acid group or a sulfonate group in at least 50 % of the sulfonates present in the second component by weight based upon the total weight of the second component.

76) An aqueous solution comprising a composition according to claim 64, wherein the combined amount of said first and said second components is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 200 NTU units when the total hardness level of the water is any value between 100-300 ppm.

77) An aqueous solution comprising a composition according to claim 64, wherein the combined amount of said first and said second components is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 150 NTU units when the total hardness level of the water is any value between 100-300 ppm.

78) An aqueous solution comprising a composition according to claim 64, wherein the combined amount of said first and said second components is between 0.09% and 0.11 % by weight based upon the total weight of the solution, and wherein said components are present in effective amounts to provide a turbidity in said aqueous solution of below 50 NTU units when the total hardness level of the water is any value between 100-300 ppm.

79) A composition of matter useful for cleaning comprising a composition according to claim 64 and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing in said first

and said second components of said mixture an effective 2-phenyl isomer content sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 200 NTU units when the total hardness level of the water is any value between 100-300 ppm, and in which the total sulfonate surfactant concentration in said composition is any amount between 0.09 and 0.11 %.

80) A composition of matter useful for cleaning comprising a composition according to claim 64 and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing in said first and said second components of said mixture an effective 2-phenyl isomer content sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 150 NTU units when the total hardness level of the water is any value between 100-300 ppm, and in which the total sulfonate surfactant concentration in said composition is any amount between 0.09 and 0.11 %.

81) A composition of matter useful for cleaning comprising a composition according to claim 64 and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing in said first and said second components of said mixture an effective 2-phenyl isomer content sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 50 NTU units when the total hardness level of the water is any value between 100-300 ppm, and in which the total sulfonate surfactant concentration in said composition is any amount between 0.09 and 0.11 %.



82) A composition according to claim 64 wherein the alkyl group on said first component is a linear alkyl group.

83) A composition according to claim 64 wherein the alkyl group on said first component is a branched alkyl group.

84) A composition according to claim 64 wherein the alkyl group on said second component is a linear alkyl group.

85) A composition according to claim 64 wherein the alkyl group on said second component is a branched alkyl group.

86) A composition according to claim 64 wherein said first component comprises any amount between 10.00% and 55.00%, by weight, including every hundredth percentage therebetween, of the total combined weights of both of said first component and said second components present in said mixture.

87) A composition according to claim 64 wherein said first component comprises any amount between 15.00% and 48.00%, by weight, including every hundredth percentage therebetween, of the total combined weights of both of said first component and said second components present in said mixture.

88) A composition according to claim 64 wherein said first component comprises any amount between 25.00% and 35.00%, by weight, including every hundredth percentage therebetween, of the total combined weights of both of said first component and said second components present in said mixture.

89) A composition according to claim 64 further comprising an additional material known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, water-soluble branched alkylbenzene sulfonates, ether sulfates, alkylphenol alkoxylates, fatty acid amides, alpha olefin sulfonates, paraffin sulfonates, betaines, chelating agents, tallowamine ethoxylates, polyetheramine ethoxylates, ethylene oxide/propylene oxide block copolymers, alcohol ethylene oxide/propylene oxide low foam surfactants, methyl ester sulfonates, alkyl polysaccharides, N-methyl glucamides, alkylated sulfonated diphenyl oxide, polyethylene glycol, water soluble alkylbenzene sulfonates having a 2-phenyl isomer content of greater than 30.00 %, and water soluble alkyltoluene sulfonates having a 2-phenyl isomer content of less than 50.00 %

90) A composition according to claim 89 wherein the total concentration of water soluble sulfonates is between 0.025% and 25.00% by weight, based upon the total weight of the solution, and including every hundredth percentage therebetween.

91) A composition according to claim 89 wherein the total concentration of said additional material is between 0.10% and 25.00% by weight, based upon the total weight of the solution, and including every hundredth percentage therebetween.

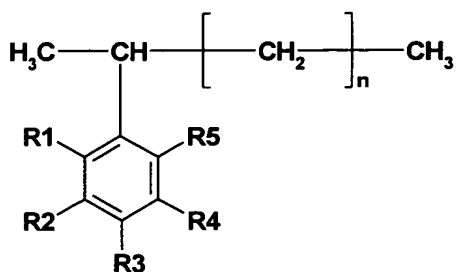
92) A composition according to claim 89 further comprising a third component, wherein said third component is different from said second component and is selected from the group consisting of: at least one other component known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxylates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, water-soluble branched alkylbenzene sulfonates, water soluble alkyltoluene sulfonates having a 2-phenyl isomer content of less than 30.00 %, and water soluble alkylbenzene sulfonates having a 2-phenyl isomer content of less than 26.00 %.

93) A solid bar of soap comprising between 2.00% and 25.00 % by weight based upon the total weight of the bar of soap of a composition according to claim 64.

94) A free-flowing powdered detergent formulation which contains a composition according to claim 64 and at least one other component known to be useful in formulating soaps, detergents, and the like.

95) A solid tablet useful for cleaning laundry which comprises a composition according to claim 64 and at least one other component known to be useful in formulating soaps, detergents, and the like.

96) A composition useful for cleaning various surfaces, and other substrates that is formed from components comprising: a) an alkyltoluene sulfonate surfactant component present in any amount between 0.25 % and 99.50 % by weight based upon the total weight of the finished detergent composition, said component characterized as comprising any amount between 26.00 % and 82.00 % by weight based upon the total weight of the component, and including every hundredth percentage therebetween, of water-soluble sulfonates of the 2-phenyl isomers of alkyltoluenes described by the general formula:



wherein n is equal to any integer between 4 and 16, wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> is a sulfonate group, and wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>

and R<sub>5</sub> is a substituent group selected from the group consisting of methyl and ethyl;  
and

b) any amount between 0.50 % and 99.75 % of at least one other components known to be useful in formulating soaps, detergents, and the like, wherein at least one of said other components is selected from the group consisting of: fatty acids, alkyl sulfates, an ethanolamine, an amine oxide, alkali carbonates, water, ethanol, isopropanol, pine oil, sodium chloride, sodium silicate, polymers, alcohol alkoxyates, zeolites, perborate salts, alkali sulfates, enzymes, hydrotropes, dyes, fragrances, preservatives, brighteners, builders, polyacrylates, essential oils, alkali hydroxides, ether sulfates, alkylphenol ethoxylates, fatty acid amides, alpha olefin sulfonates, paraffin sulfonates, betaines, chelating agents, tallowamine ethoxylates, polyetheramine ethoxylates, ethylene oxide/propylene oxide block copolymers, alcohol ethylene oxide/propylene oxide low foam surfactants, methyl ester sulfonates, alkyl polysaccharides, N-methyl glucamides, alkylated sulfonated diphenyl oxide, water-soluble alkylbenzene sulfonates having a 2-phenyl isomer content of less than 26.00 %, water-soluble alkylbenzene sulfonates having a 2-phenyl isomer content of greater than 26.00 %, or alkyltoluene sulfonates having a 2-phenyl isomer content of less than 26.00 %.

97) A composition of matter useful for cleaning, comprising: an alkyltoluene sulfonate anions component and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing an increased 2-phenyl isomer content in the alkyltoluene sulfonate anions component sufficient to cause an aqueous solution formed from mixing said composition with tap water to have

a turbidity of less than 200 NTU units when the total hardness level of the water is any value between 100-300 ppm and in which the surfactant concentration in the cleaning solution is any amount between 0.09 and 0.11 %.

98) A composition of matter useful for cleaning, comprising: an alkyltoluene sulfonate anions component and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing an increased 2-phenyl isomer content in the alkyltoluene sulfonate anions component sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 100 NTU units when the total hardness level of the water is any value between 100-300 ppm and in which the surfactant concentration in the cleaning solution is any amount between 0.09 and 0.11 %.

99) A composition of matter useful for cleaning, comprising: an alkyltoluene sulfonate anions component and at least one other component known to be useful in formulating soaps, detergents, and the like, wherein the improvement comprises providing an increased 2-phenyl isomer content in the alkyltoluene sulfonate anions component sufficient to cause an aqueous solution formed from mixing said composition with tap water to have a turbidity of less than 50 NTU units when the total hardness level of the water is any value between 100-300 ppm and in which the surfactant concentration in the cleaning solution is any amount between 0.09 and 0.11 %.

100) A composition according to claim 96 wherein said surface is selected from the group consisting of: fabrics, dishes, aluminum vehicles, dairy equipment and aircraft.

101) A composition useful for cleaning, wherein said composition includes at least 0.50 % by weight, based upon the total weight of the composition, of a composition according to any of claims 1, 58, 64, or 94.

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